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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,718	12/14/2001	Hideshi Hattori	CU-2727 RJS	8050

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EXAMINER	
DICUS, TAMRA	
ART UNIT	PAPER NUMBER
1774	

DATE MAILED: 06/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/018,718	HATTORI, HIDESHI	
	Examiner	Art Unit	
	Tamra L. Dicus	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) *21-29* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

Double Patenting

1. Claim 1 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 7. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

2. Applicant is advised that should claim 1 be found allowable, claim 7 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

3. The same objection will follow for claims 2-4, 6, and 14, 16, 18, and 20 being a substantial duplicate of claims 8-11, 15, 17, 19, and 21.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear if a film is over a substrate with particles over the film or if there are

just particles on a substrate. The Examiner takes the position that a film or particles are over a substrate.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-3, 7-9, 14-15, and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 09-222503 to Yamada.

Yamada teaches an anti-reflection film comprised of fluorine-containing polymeric fine particles formed into a layer over a transparent substrate having a low refractive index in Figure 1. The particles in the film also serve to provide a multilayer film by introducing a high-refractive index layer (polymer electrolyte film) in Figure 2. See [0013], [0028]-[0036], page 32, and Tables 2 & 3. How the particles are allowed to adhere (e.g. electrostatic attraction) the refractive index and polarity relationship of claims 1, 2, 7, and 8 are inherent as the same materials and surface treatment processes for application are taught at [0038]. Furthermore, that fine particles are achieved by "forming a polymer electrolyte film made of...." is a process limitation in a product claim. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. Patentability of an article depends on the article itself and not

the method used to produce it (see MPEP 2113). Furthermore, the invention defined by a product-by-process invention is a product NOT a process. *In re Bridgeford*, 357 F. 2d 679. It is the patentability of the product claimed and NOT of the recited process steps which must be established. *In re Brown,* 459 F. 29 531. Additionally, claim 3 recites a process limitation, e.g. "is formed by sequential deposition...". Again, see MPEP 2113.

8. Addressing claims 20-21, bulk refractive index of the fine particle layer from 1.05 to 1.70 is taught by Yamada in Tables 2 and 3.

9. Addressing claims 14-15, Yamada teaches at [0016] a particle size from 5 nm to 200 nm, meeting Applicant's claimed range from 50 – 300 nm.

10. Claims 1-2, 7-9, 14-15, and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,919,555 to Yasuda.

11. Yasuda teaches an antireflection film having polymer particles in a film and multilayer, being cross-linked at col. 1, lines 10-20, col. 2, lines 20-45, and col. 5, lines 35-55. The refractive index is greater than 1.45 with a particle size range of 5-200 nm, the thickness is between 50 and 400 nm, and the particle size is between 5 and 200 nm (meeting claims 1, 7, 20, 21) at col. 3, lines 20-30, col. 4, lines 10-25, and col. 6, lines 39-47. How the particles are allowed to adhere (e.g. electrostatic attraction) the refractive index and polarity relationship of claims 1, 2, 7, and 8 are inherent as the same materials and processes for application are taught. Adhesion is present via hard coat layer (2), see Figure. That fine particles are achieved by "forming a polymer electrolyte film made of...." is a process limitation in a product claim and is not given patentable weight. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. Patentability of an article depends on

the article itself and not the method used to produce it (see MPEP 2113). Furthermore, the invention defined by a product-by-process invention is a product NOT a process. *In re Bridgeford*, 357 F. 2d 679. It is the patentability of the product claimed and NOT of the recited process steps which must be established. *In re Brown,* 459 F. 29 531.

12. Claims 3-4 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,919,555 to Yasuda in view of et al. USPN 6,106,948 to Wang.

13. Yasuda essentially teaches the claimed invention. While Yasuda teaches a film between a substrate and particles, the film of Yasuda is not a cross-linked polymer electrolyte or in multilayered form (claims 3-4 and 9-10). Yasuda teaches at col. 11, lines 12-25 polystyrene and copolymers of polystyrene are suitable polymers for the film, which may further incorporate other polymers, silicon particles, and inorganic particles explained further through col. 12, line 26. Wang teaches a nonlinear optical structure teaching cross-linking polydiallylmethylammonium chloride to a polymer electrolyte such as sulfonated polystyrene to form a film (same as Applicant's disclosure, equivalent to polymer electrolyte film formed as a film made of a cross-linked polymer electrolyte film (claims 4 and 10)) over a glass substrate (transparent substrate) at col. 3, lines 30-40, col. 4, lines 40-49, col. 5, line 65-68, col. 6, lines 1-3, col. 7, line 64-col. 8, line 7 and Examples 1-3. The objective of Wang is to produce a cross-linked polyelectrolyte film on a glass substrate by synthesizing polymers (such as the same polystyrene as Yasuda and Applicant) in order to provide a substrate that has a charged surface (which is the same purpose as Applicant). Wang teaches polystyrene among other polymers can be used as a polyion to provide charges to a substrate. It would have been obvious to one of ordinary skill in the art to modify the anti-reflection film of Yasuda to substitute the polymer

film for a polymer electrolyte film in a single or multi-layer form because Wang teaches polymer electrolyte films may be made of polystyrene and are crosslinkable polyelectrolytes, provided over a glass substrate, resulting in a charged surface, which is also made easily into a multilayer film in Examples 1-3 via dipping techniques providing nonlinear optical properties. How the particles are allowed to adhere (e.g. electrostatic attraction or adhesion) the refractive index and polarity relationship are inherent as the same materials and processes for application are taught. Additionally, claim 3 recites a process limitation, e.g. "is formed by sequential deposition...". Again, see MPEP 2113. Further addressing claim 3, Wang teaches the film can be multi-layered at col. 7, line 64-col. 8, line 7 via dipping techniques.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claims 5-6, 11-13, and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 09-222503 to Yamada in view of et al. and USPN 6,383,620 to Aoyama et al.

16. Regarding claims 5-6 and 11, Yamada essentially teaches the claimed invention but does not teach a reinforcing means such as adhesive. However, Aoyama teaches an antireflection article of fluorine-containing polymer film and a transparent glass substrate where adhesives are used to increase bonding strength at col. 12, lines 40-45 and col. 14, line 47-col.15, line 10. Aoyama also teaches effective measures to improve adhesion is to crosslink acrylic resins with fluorine-containing polymers (irreversibly coupling) at col. 9, lines 1-21. Hence it would have

been obvious to one of ordinary skill in the art to modify the antireflection film of Yamada to further include adhesives since Aoyama teaches one may add adhesives to increase bonding strength at col. 14, line 47-col. 15, line 10 and col. 9, lines 1-21.

17. Regarding the thickness requirements of claims 12-13 and 16-17, Yamada does not teach, however thickness of films are optimizable. Aoyama teaches film thickness may be controlled by very simple coating methods at col. 14, lines 35-36. Hence, one skilled in the art would have been motivated to vary thickness of films since Aoyama teaches film thickness may be controlled via coating methods at col. 14, lines 35-36. Also, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272. Thickness effects the refractive index.

18. Regarding claims 18-19 to the volume % from 10 to 90%, Yamada does not per se teach "volume %", however Yamada teaches 26%-50% void concentration of fine particles in the film at [0015]. Hence, the Examiner takes the position void% concentration is equivalent to volume %, and thus Yamada teaches the claimed percentage range.

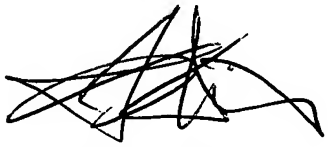
Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPN 6,551,701 to Nohr et al. teaches a coating composition containing beads of high refractive index such as polydiallylmethylammonium chloride. USPN 6,187,522 to Majumdar et al. teaches scratch resistant antistatic layer for imaging elements. USPN 5,843,332 to Takeuchi et al. teaches a polymer dispersion –type liquid crystal device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is (703) 305-3809. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on (703) 308-0449. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-8329 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Tamra L. Dicus
Examiner
Art Unit 1774

June 9, 2003

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